

CLAIMS

1. A device for separating blood into blood components comprising:

- a collecting container (2) for receiving blood (WB),
- a first satellite container (4) connected, in fluid flow communication, to said collecting container (2) through a leukocyte filter (22) for receiving from said collecting container (2) a leukocyte depleted first blood component (PRP),

- a second satellite container (6) connected, in fluid flow communication, with said collecting container (2) for receiving from said collecting container a second leukocyte depleted blood component (PRC),

characterised in that said second satellite container (6) is connected to said collecting container (2) through said leukocyte filter (22), flow control means (36, 38, 42) being provided for allowing fluid flow from said collecting container selectively into said first (4) or second (6) satellite container through said leukocyte filter (22), whereby whole blood (WB) can be separated into a first (PRP) and second (PRC) leukocyte depleted blood component with a single leukocyte filter (22).

2. A device according to claim 1, characterised in that said second satellite container (6) is further connected to said collecting container (2) through conduit means (28b, 34, 16a) by-passing said filter (22), the said flow control means (36, 38, 42) being further adapted for allowing fluid flow from said second satellite container (6) into said collecting container (2) only through said conduit means (28b, 34, 16a) by-passing said filter (22).

3. A device according to claim 2, characterised in that said second satellite container (6) includes a blood additive and wherein said flow control means (36, 38, 42) are adapted to selectively:

- feeding a first blood component (PRP) from said collecting container (2) into said first satellite container (4) through said leukocyte filter (22) to provide a leukocyte depleted blood component into said first satellite container (4);

- feeding said blood additive from said second satellite container (6) into said collecting container (2) only through said conduit means (28, 34, 16a) by-passing said filter (22) and

- feeding a second blood component (PRC) from said collecting container (2) into said second satellite container (6) only through said leukocyte filter (22) to provide into said second satellite container (6) a second leukocyte depleted blood component (PRC).

4. A device according to any of the preceding claims, characterised in that it comprises:

- first conduit means (16a, 16b, 16c) connecting said collecting container (2) to said first satellite container (4) through said leukocyte filter (22),

- second conduit means (28a, 28b) branching off (26) from said first conduit means (16c) downstream of said leukocyte filter (22), thereby to connect said collecting container (2) to said second satellite container (6), and

- by-pass conduit means (34) branching off (20) from said first conduit means (16a), upstream of said leukocyte filter (22) and connected to said second conduit means (28b).

5. A device according to any of claims 1 to 4, characterised

in that said flow control means (36, 38, 42) comprise sensor means for detecting fluid flow or presence of fluid at selected positions of the device and electro-mechanical valve means (36, 38, 42) operated and controlled by said sensor means.

6. A device according to any of claims 1 to 5, characterised in that said flow control means comprise sensor means (52) for detecting a parameter representative of the presence of said second blood component (PRC) in the filtrate from said leukocyte filter (22) and automatically operated valve means (38, 42) adapted to switch fluid flow communication from said collecting container (2) to said first satellite container (4) to fluid flow communication from said collecting container (2) to said second satellite container (6) when the sensor means (52) detect the presence of said second blood component (PRC).

7. A device according to any of claims 1 to 4, characterised in that said flow control means (36, 38, 42) comprise manually operated valves.

8. A device according to claim 4, characterised in that a one-way valve (54 or 36) is provided in by-pass conduit means (34) allowing fluid flow only from second satellite container (6) to collecting container (2).

9. A device according to claim 4, characterised in that said flow control means comprise valve means (40, 42) in said second conduit means (28a, 28b).

10. A device according to any of claims 1 to 5, characterised in that said flow control means (36, 38, 40, 42, 52) are as-

sociated with a separator device adapted to cause fluid flow from the collecting container (2) to the satellite containers (4, 6).

11. A device according to any of claims 1 to 10, characterised in that it further comprises a third satellite container (8) connected in fluid flow communication with said first satellite container (4) for receiving from said first satellite container (4) a third blood component (PL).

12. A method for separating blood into leukocyte depleted blood components comprising the steps of:

- providing a blood separator device comprising a collecting container (2) for receiving blood, a first satellite container (4) connected, in fluid flow communication, to said collecting container (2) through a leukocyte filter (22) and a second satellite container (6) connected, in fluid flow communication, to said collecting container through said leukocyte filter (22),

- separating blood collected in said collecting container (2) into a first (PRP) and second (PRC) blood component,

- feeding said first blood component (PRP) from said collecting container (2) into said first satellite container (4) through said leukocyte filter to provide a leukocyte depleted first blood component into said first satellite container, while leaving the second blood component (PRC) within said collecting container (2),

- adding into said collecting container (2) an additive solution for the second blood component (PRC),

- feeding said second blood component (PRC) suspended in said additive into said second satellite container (6) passing through said leukocyte filter (22).

13. A method according to claim 12, wherein said additive solution is fed from said second satellite container (6) into said collecting container (2) through by-pass conduit means (34), by-passing said leukocyte filter (22).

14. A method according to claim 12 or 13, comprising the steps of:

- detecting the presence of said second blood component (PRC) in the filtrate from said leukocyte filter (22) and
- switching fluid flow communication from said collecting container (2) to said first satellite container (4) to fluid flow communication from said collecting container (2) to said second satellite container (6) when the presence of said second blood component is detected in the filtrate, thereby to allow recovery into said first satellite container (4) of the filter hold-up of the first blood component (PRP).

15. A method according to any of claims 12 to 14, further comprising separating the second leukocyte depleted blood component (PRP) in said first satellite container (4) into a third (PL) and fourth (PC) blood component and feeding said third blood component (PL) from said first satellite container (4) into a third satellite container (8).

16. Method according to any of claims 12 to 15, carried out with the use of a device according to any of claims 1 to 11.